

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 May 2003 (30.05.2003)

PCT

(10) International Publication Number
WO 2003/044054 A3

- (51) International Patent Classification⁷: C07K 14/47, 16/18, 16/42, G01N 33/564, C12P 21/08, A61K 38/00
- (21) International Application Number: PCT/EP2002/012955
- (22) International Filing Date: 19 November 2002 (19.11.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Date: 09/988,165 19 November 2001 (19.11.2001) US
- (71) Applicant (for all designated States except US): SYMBIOTEC GESELLSCHAFT ZUR ERFORSCHUNG UND ENTWICKLUNG AUF DEM GEBIETE DER BIOTECHNOLOGY MBH [DE/DE]; Stuhlsatzenhäusweg 69, 66123 Saarbrücken (DE).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): ZEPPEZAUER, Michael [DE/DE]; Auf den Hütten 32, 66133 Scheidt (DE). SCHÖNBERGER, Arno [DE/DE]; Wildgansstrasse 16a, 22145 Hamburg (DE). CEBE-CAUER, Ladislav [SK/SK]; 01.A. Hlinku 56/63, 92101 Piestany (SK).
- (81) Designated States (national): AE, AG, AI, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:
— of inventorship (Rule 4.17(iv)) for US only
- Published:
— with international search report
- (88) Date of publication of the international search report: 4 March 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PEPTIDES FOR THE PRODUCTION OF PREPARATIONS FOR THE DIAGNOSIS AND THERAPY OF AUTOIMMUNE DISEASES

(57) Abstract: Peptides are proposed with antigenic or immunogenic determinants, which result from autoantibodies in the body fluids of patients, who are suffering from autoimmune diseases, in particular diseases of the rheumatic group as systemic lupus erythematosus (SLE), rheumatoid arthritis or systemic sclerosis. In the case of the peptides it is preferably a question of the C terminus of bovine histone H1 with the sequence section 187-211 or corresponding human histone H1-peptides of the sub-types H1.1, H1.2, H1.3, H1.4, H1.5 and H1.a and the N termini of histone H2B with the sequence section 1-35 and 36-76, which are capable of cross reactions with the autoantibodies (anti-histone-antibodies). The invention furthermore provides ways of forming monoclonal antibodies and antiidiotypal antibodies, which are directed against autoantibodies. The diagnosis of autoimmune peptides and diseases is possible in accordance with the invention with a high degree of certainty and the monoclonal antibodies directed against the autoantibodies are suitable for the production of medicaments for the therapy of said diseases.

WO 2003/044054 A3

INTERNATIONAL SEARCH REPORT

 International Application No.
 PCT/EP 02/12955

A. CLASSIFICATION OF SUBJECT MATTER

 IPC 7 C07K14/47 C07K16/18 C07K16/42 G01N33/564 C12P21/08
 A61K38/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, EMBL, BIOSIS, CHEM ABS Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 532 979 A (SYMBIOTEC GMBH) 24 March 1993 (1993-03-24) the whole document ---	1-16
Y	DATABASE SWALL 'Online! 16 October 2001 (2001-10-16) "Histone H1.1" Database accession no. Q02539 XP002249103 the whole document ---	1-16
Y	DATABASE SWALL 'Online! 1 August 1990 (1990-08-01) "Histone H1.2" Database accession no. P16403 XP002249104 the whole document --- --- -/-	1-16

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *G* document member of the same patent family

Date of the actual completion of the international search

25 July 2003

Date of mailing of the international search report

12/08/2003

Name and mailing address of the ISA

 European Patent Office, P.B. 5816 Patenthuis 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-8016

Authorized officer

Weikl, M

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 02/12955

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DATABASE SWALL 'Online! 1 August 1990 (1990-08-01) "Histone H1.3" Database accession no. P16402 XP002249105 the whole document	1-16
Y	DATABASE SWALL 'Online! 1 March 1989 (1989-03-01) "Histone H1.4" Database accession no. P10412 XP002249106 the whole document	1-16
Y	DATABASE SWALL 'Online! 1 August 1990 (1990-08-01) "Histone H1.5" Database accession no. P16401 XP002249107 the whole document	1-16
Y	DATABASE GENESEQ 'Online! 13 June 2000 (2000-06-13) "Human histone H1 isoform H1S-3" Database accession no. AAY57331 XP002249108 the whole document	1-16

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/EP 02/12955**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 8, 9 and 13-16 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/12955

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0532979 A	24-03-1993	DE 4130786 A1	18-03-1993
		US 6369203 B1	09-04-2002
		AT 155487 T	15-08-1997
		CA 2078373 A1	17-12-1992
		CZ 9202816 A3	14-04-1993
		DE 59208706 D1	21-08-1997
		EP 0532979 A2	24-03-1993
		JP 5271281 A	19-10-1993
		SK 281692 A3	08-02-1995